

Science 30	Unit C: Physics
Lesson 1 - Field Lines	84 mins

### Field Lines

<p>Electricity and Magnetism are both part of the same physical properties</p> <p>Fields - forces that can act at a distance, contact not needed</p> <ul style="list-style-type: none"><li>- Gravity, electrons (electricity), magnetics</li><li>- Field strength is inverse to the distance from the object</li></ul>	<p>EM Field Theory</p> <ul style="list-style-type: none"><li>- Opposite "charges" (N and S, Positive and Negative)</li><li>- Field lines move to their opposite (Opposites attract)</li><li>- "Move" from positive to negative (N to S)</li><li>- Are invisible, you can only see their effects, (through test bodies)</li></ul>
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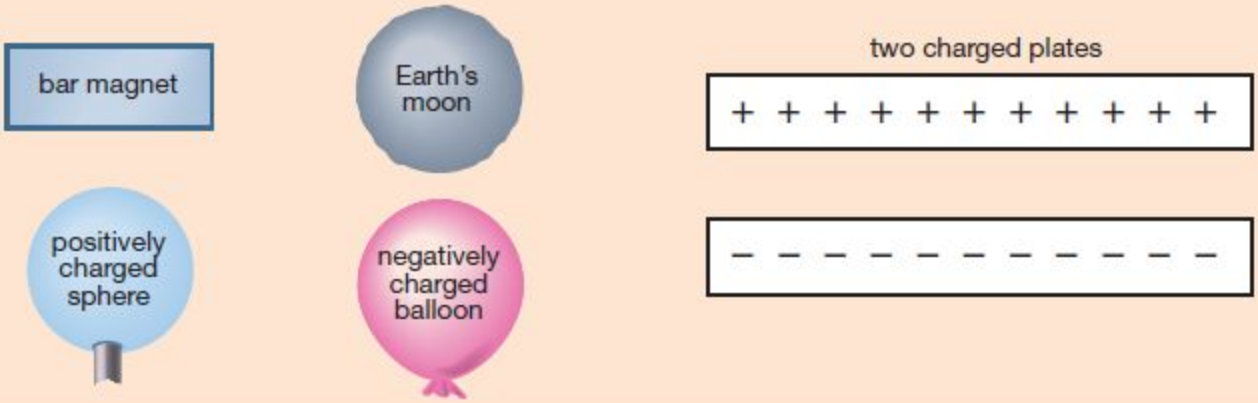
# Science 30 - Lesson 25 - Unit C - Field Lines

Name: \_\_\_\_\_

1) Sketch the field lines created.


2) Each of the following objects is the source of a field.

**Sources of Fields**



The diagram illustrates five sources of fields on an orange background. On the left, there is a blue box labeled 'bar magnet'. In the center, there is a grey sphere labeled 'Earth's moon'. On the right, there are two horizontal rectangular boxes representing 'two charged plates'. The top plate contains ten '+' signs, and the bottom plate contains ten '-' signs. Below the bar magnet is a blue sphere on a stand labeled 'positively charged sphere'. Below the Earth's moon is a pink balloon labeled 'negatively charged balloon'.

- Add field lines to the above sources of fields. Be sure to indicate direction.
- Under each of your sketches, identify the type of field you sketched.

3) Define the following terms.

- negative charge

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**b) positive charge**

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**c) Coulomb**

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**d) electric potential difference**

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**e) Voltage**

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**f) Volt**

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**g) electric field**

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**h) magnetic field**

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**i) gravitational field**

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**j) test body**

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**k) field lines**

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**4) Compare and contrast characteristics of electric, magnetic, and gravitational fields.**

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**5) Explain the importance of test bodies when studying fields.**

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